A REVIEW AND KEYS TO GENERA AND SOME SPECIES OF THE FRUIT FLY TRIBES PHYTALMIINI, PHASCINI AND EPACROCERINI (DIPTERA: TEPHRITIDAE: PHYTALMIINAE)

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Abstract

The tribes Phytalmiini, Phascini and Epacrocerini are considered to form a related grouping that includes 18 primarily New Guinea genera: Phytalmiini with *Diplochorda* Osten Sacken, *Ortaloptera* Edwards, *Phytalmia* Gerstaecker and *Sessilina* McAlpine & Schneider; Phascini with *Diarrhegmoides* Malloch, *Epinettyra* Permkam & Hancock, *Gressittidium* Hardy, *Othniocera* Hardy, *Paraphasca* Hardy, *Phasca* Hering, *Stigmatomyia* Hardy and *Xenosophira* Hardy; and Epacrocerini with *Epacrocerus* Hardy, *Proepacrocerus* Hardy, *Sophiropsis* Hardy, *Tanaodema* Hardy, *Tanymetopus* Hardy and *Udamolobium* Hardy. Three genera occur in Australia. A key to genera and keys to the species of *Ortaloptera* and *Diplochorda* are included. The type locality of *Diplochorda myrmex* Osten Sacken, 1881 is considered to be in Papua New Guinea and '*D. trineata*' de Meijere, 1913 is regarded as a *nomen nudum*, with the species correctly named as *D. trilineata* de Meijere, 1915. Known host plants are newly fallen logs.

Introduction

Although sometimes treated in the past as a separate family or subfamily (*e.g.* Malloch 1939), there is general agreement among recent authors (*e.g.* Korneyev 1999, Hancock and Drew 2003) that the *Phytalmia* group represents a tribe (Phytalmiini) closely related to the Acanthonevrini and contains the genera *Diplochorda* Osten Sacken, *Phytalmia* Gerstaecker, *Sessilina* McAlpine & Schneider and *Ortaloptera* Edwards, which all have mid tibiae with 1 long, 1 medium, 1 short and several very short and thin apical black spines. The Phytalmiini appear to belong in a grouping within subfamily Phytalmiinae that also includes the tribes Phascini and Epacrocerini (*sensu* Korneyev 1999), which also have 1 long and several shorter midtibial spines.

With the possible exception of *Paraphasca biangulata* (de Meijere) (see Hancock 2011a), this group is restricted to the mainland of New Guinea and surrounding islands such as Salawati, Waigou, Biak, Japen and New Britain, plus northeastern Queensland, Australia, where three species occur.

Host records are available for three species in the *Phytalmia* complex: *Phytalmia alcicornis* (Saunders) and *P. mouldsi* McAlpine & Schneider were reared from beneath the bark of recently fallen *Dysoxylum gaudichaudianum* (Meliaceae) trees (Hardy 1986, Dodson and Daniels 1988, Dodson 1989, 1999, Permkam and Hancock 1995); *Phytalmia cervicornis* Gerstaecker was attracted to *D. gaudichaudianum* (Dodson 1999) and reared from *Xanthophyllum* sp. (Xanthophyllaceae) (Dodson and Daniels 1988). The biology of *P. mouldsi* and other *Phytalmia* species has been studied in detail by Moulds (1977) and Dodson (1989, 1999), while an additional species was described by Schneider (1993) and their phylogenetic relationships were discussed by Schutze *et al.* (2007).

No host or biological information is available for either Phascini or Epacrocerini but, as with Phytalmiini, they appear to be rainforest dwellers, with several species of *Ortaloptera*, *Phytalmia*, *Othniocera* Hardy, *Paraphasca* Hardy, *Phasca* Hering, *Stigmatomyia* Hardy, *Epacrocerus* Hardy and *Sophiropsis* Hardy collected in logging areas in Papua New Guinea (Hardy 1982, 1986, 1988, Schneider 1993).

The following generic key is based on the works of Hardy (1982, 1986) and McAlpine and Schneider (1978). Terminology follows White *et al.* (1999).

Key to genera of Phytalmiini, Phascini and Epacrocerini

1 Wing with R-M crossvein placed above basal third of cell dm, well before midline; wing pattern in apical half with a large oval brown area separated from a narrow costal band by an elongate, C-shaped hyaline band [2 species, keyed below] ..... *Ortaloptera* Edwards, 1915

– Wing with R-M crossvein placed at or beyond middle of cell dm; wing pattern not as above 2

2 Wing distinctly elongate; pterostigma elongate, if not much longer than cell c then very narrow and meeting costa at a sharply acute angle; cell bcu apically acute but at most weakly produced; wing pattern not dimidiate; scutellum with only 1 pair of strong, apical setae; head often with genal processes in males but not distinctly elongate; metathoracic postcoxal bridge strongly sclerotised (Tribe Phytalmiini) 3

– Wing usually not distinctly elongate and pterostigma usually not narrow and elongate, if so then pattern dimidiate, brown anteriorly and reticulate posteriorly; cell bcu often distinctly produced at apex; scutellum usually with 2-3 pairs of strong marginal setae, if only 1 then head distinctly elongate and wing pattern dimidiate; metathoracic postcoxal bridge membranous 5

3 Wing with veins R_1, R_{2+3} and R_{4+5} closely approximate for much of their length and vein M strongly downcurved before R-M crossvein; pterostigma much longer than cell c; males with costa strongly arched in its outer half and with or without short, broad genal processes [9 species, keyed below; *Nesadrama* Perkins, 1939 is a synonym (McAlpine and Schneider 1978)] ..... *Diplochorda* Osten Sacken, 1881

– Wing with veins R_1, R_{2+3} and R_{4+5} not closely approximate for much of their length and vein M not downcurved before R-M crossvein; pterostigma not much longer than cell c; genal processes variable 4

4 Abdomen not petiolate, tergite 1+2 not constricted basally; anterior notopleural seta well developed, as long as posterior one; pterostigma about as long as cell c; males with or without short genal processes [3 species, keyed by McAlpine and Schneider (1978)] ..... *Sessilina* McAlpine & Schneider, 1978

– Abdomen distinctly petiolate, tergite 1+2 constricted basally; anterior notopleural seta much weaker than posterior one or absent; pterostigma much shorter than cell c; males with long, antler-like genal processes [7 species, six keyed by McAlpine and Schneider (1978) plus one (*P. robertsi* Schneider) added by Schneider (1993); *Elaphomyia* Saunders, 1861 and *Archiphytalmia* Edwards, 1936 are synonyms (McAlpine and Schneider 1978); male genal processes illustrated by Dodson (1999) and Schutze *et al.* (2007)] ..... *Phytalmia* Gerstaecker, 1860

5 Wing cell bcu apically truncate or weakly acute but not produced into a distinct apical lobe; usually 2 pairs of scutellar setae, rarely 1 or 3; 1 pair each of long frontal and orbital setae, sometimes a weak upper orbital seta also present and sometimes all absent (Tribe Epacrocerini) 6

– Wing cell bcu produced into a distinct apical lobe; usually 3 pairs of scutellar setae, rarely 2; usually 2-3 pairs of frontal setae, rarely 1; usually 2 pairs of orbital setae, if 1 then short and placed well behind middle of frons (Tribe Phascini) 11

6 Second antennal segment not lobate; face gently concave; wing pattern with brown apical area broadly separated from brown transverse band from costa over R-M crossvein into cell dm 7

– Second antennal segment lobate on inner margin and extending beyond base of arista; face vertical or convex; wing pattern not as above 8

7 Two pairs of scutellar setae; cell bcu apically blunt [1 species, illustrated by Hardy (1988)] ..... *Proepacrocerus* Hardy, 1988

– Three pairs of scutellar setae; cell bcu apically acute [2 species, illustrated by Hardy (1986)] ..... *Sophiropsis* Hardy, 1986

8 Scutellum with only 1 pair of distinct, apical setae; head narrow and elongate in lateral view; wing narrow and elongate, the pattern dimidiate, brown anteriorly and largely reticulate posteriorly [1 species, illustrated by Hardy (1987)] ..... *Tanaodema* Hardy, 1987

– Scutellum with 2 pairs of distinct setae; head broad in lateral view, often globose; wing relatively narrow but not distinctly elongate, the pattern not as above 9

9 Head higher than long; face almost vertical; upper occiput narrow; thorax normal in shape, not elongate and slender [4 species, keyed by Hardy (1982)] ..... *Epacrocerus* Hardy, 1982

– Head longer than high; face strongly receding; occiput inflated; thorax elongate and slender 10

10 Wing hyaline except a tinge of brown near apex; pterostigma less than half length of cell c; 1 long and 1 short costal spines above apex of vein Sc [1 species, illustrated by Hardy (1982)] ..... *Tanymetopus* Hardy, 1982

– Wing with a complex pattern of brown and hyaline markings; pterostigma large, longer than cell c; 2 short costal spines above apex of vein Sc [1 species, illustrated by Hardy (1982)] ..... *Udamolobium* Hardy, 1982

11 Wing with R-M crossvein placed below middle or basal half of pterostigma, well before its apex 12

– Wing with R-M crossvein placed below or well beyond apex of pterostigma 14

12 Wing with a distinct costal spine at apex of vein Sc; veins R_{2+3} and R_{4+5} strongly arcuate; intrapostalar setae distinct [1 species, illustrated by Hardy (1986)] ..... *Stigmatomyia* Hardy, 1986

– Wing without a distinct costal spine at apex of vein Sc; veins R_{2+3} and R_{4+5} not strongly arcuate; intrapostalar setae absent 13

13 Wing with a hyaline transverse band from costa to just below vein M in cell dm and cell dm mostly brown; 3 pairs of scutellar setae [1 species, illustrated by Hardy (1986)] ..... *Gressittidium* Hardy, 1986

– Wing without a hyaline transverse band from costa to just below vein M and cell dm mostly subhyaline to pale fulvous; 2 pairs of scutellar setae [1 species, illustrated by Permkam and Hancock (1995) and Hancock (2011b: ♀, not ♂ as stated)] ..... *Epinettyra* Permkam & Hancock, 1995

14 Wing with a broad hyaline transverse band from costa in cell r_1 at apex of pterostigma across base of cell dm to posterior wing margin [2 species, keyed by Hancock (2011a)] ..... *Paraphasca* Hardy, 1986

– Wing without a complete hyaline transverse band from cell r_1 to posterior margin, the hyaline indentation triangular and not crossing vein M 15

15 Two pairs of scutellar setae [2 species, illustrated by Hardy (1980)] ..... *Xenosophira* Hardy, 1980

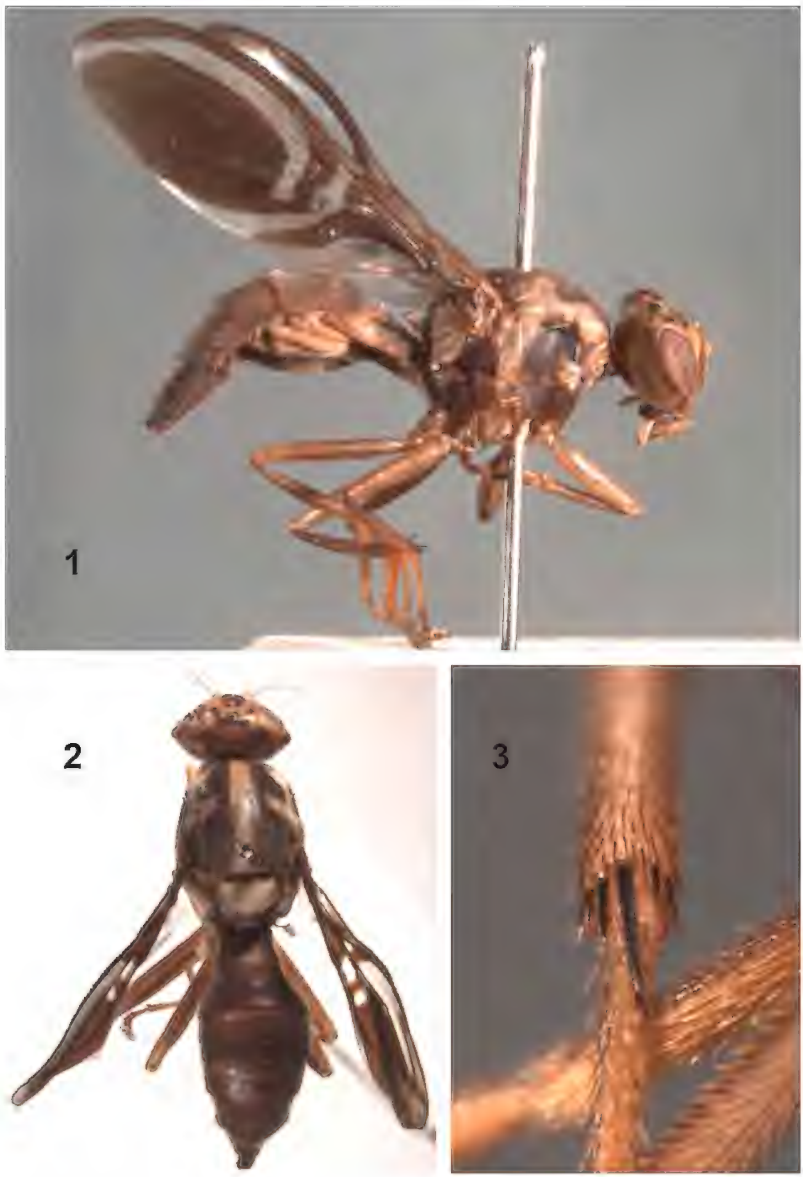
– Three pairs of scutellar setae 16

16 Third antennal segment large and broad, with antennae at least half height of eye and usually as long as face; if antennae only 2/3 length of face then only 1 pair of frontal setae; middle pair of scutellar setae weak [3 species, keyed by Hardy (1986)] ..... *Othniocera* Hardy, 1986

– Third antennal segment not large and broad, with antennae less than half height of eye and distinctly shorter than face; 2-3 pairs of frontal setae; middle pair of scutellar setae distinct 17

17 Intrapostalar setae absent; arista with short hairs on dorsal surface only [1 species, illustrated by Hardy (1986)] ..... *Diarrhegmoides* Malloch, 1939

– Intrapostalar setae present; arista long-plumose on both dorsal and ventral surfaces [6 species, keyed by Hardy (1986)] ..... *Phasca* Hering, 1953



Figs 1-3. *Ortaloptera callistomyia* females from Upper Manki logging area near Bulolo, Papua New Guinea: (1) lateral view; (2) dorsal view; (3) mid tibial spines. Photos by Barbara Baehr (Queensland Museum).

Key to *Ortaloptera* species

This genus is known only from mainland New Guinea and the following material was examined: *O. cleitamina* Edwards – holotype ♀, Dutch New Guinea, Mimika River, viii.1910, A.F.R. Wollaston, 1911-229 (in Natural History Museum, London); *O. callistomyia* Hering – 1 ♂, 2 ♀♀, Papua New Guinea: Upper Manki logging area, near Bulolo, 5000', 15.xii.1972 (♀), 29.xii.1972 (♀), 9.iii.1973 (♂), F.R. Wylie and P. Shanahan, sticky trap (in Australian Museum, Sydney).

1 Thorax and abdomen uniformly black without pale longitudinal vittae; legs blackish brown [Indonesia (Mimika River, Papua Province)] ..... *O. cleitamina* Edwards, 1915

– Thorax and abdomen reddish brown to black with distinct pale or yellow markings; legs mostly yellowish with a tinge of brown [Indonesia (Papua Province) and northern Papua New Guinea; illustrated by Hardy (1988) and in Figs 1-3] ..... *O. callistomyia* Hering, 1941

Key to *Diplochorda* species

This key is derived largely from Malloch (1939), with additional information provided by Osten Sacken (1881), Perkins (1939), Hardy (1974) and Permkam and Hancock (1995). *Diplochorda* is a mainland New Guinea genus, with one species extending as far west as Salawati Island and one as far south as Cape York Peninsula, NE Australia. In males the costa is strongly arched in its outer half and the genae in at least three species are expanded into short, blunt processes. The type species is *Dacus turgidus* Walker, 1865 (a synonym of *Dacus concisus* Walker, 1861).

1 Wing with apex of costal band extending broadly across R-M crossvein and apex of cell dm and into cell m almost to vein Cu_1; hyaline discal area hatchet-shaped, subquadrate in centre of wing, extending along its length anteriorly across vein R_{4+5} to vein R_{2+3}; male unknown [southern Papua New Guinea (Western and Central Provinces: 1 ♀ examined, Central Province, 5 km NW Brown River bridge, forest, 29.xii.1985, J.W. Ismay, in Natural History Museum, London); *Nesadrama petiolata* Hardy, 1974 (described from Mindanao, Philippines but presumably mislabelled) is a synonym (McAlpine and Schneider 1978); illustrated as '*N. petiolata*' by Hardy (1974)] ..... *D. myrmex* Osten Sacken, 1881

[The type female of *D. myrmex* was collected by L.M. D'Albertis at Katau (= Binaturi River, 09°08′29″S 142°57′10″E, *ca* 30 km west of Daru in Western Province, Papua New Guinea) during his 1876-77 expedition to the Fly River, not in Indonesian Papua as indicated by Norrbom *et al.* (1999). D'Albertis (1880) made no mention of Katau during his travels in Indonesia's West Papua Province in 1872-73 but recorded it (as 'Kataw') during his 1876-77 expedition. Note that '*D. myrmex*' of Malloch (1939) is a misidentification of *D. trilineata* de Meijere.]

– Wing with apex of costal band not extending broadly into cell m; hyaline discal area elongate and not extending anteriorly across vein R_{4+5} to vein R_{2+3} 2

2 Thorax with scutum anterior to suture largely or entirely black, without distinct longitudinal yellow vittae; male with broad genal processes 3

– Thorax with scutum anterior to suture yellow with 3 longitudinal black vittae; male unknown or without broad genal processes 5

3 Wing with costal band crossing R-M crossvein and filling most of cell r_{4+5} [northern Papua New Guinea; wing and head illustrated by Malloch (1939)] ..... *D. aneura* Malloch, 1939

– Wing with costal band not crossing R-M crossvein and filling none or only part, faintly, of cell r_{4+5} 4

4 Scutum posterior to suture largely yellow, with a medial longitudinal black vitta; scutellum yellow [Papua New Guinea and Australia (Iron Range, northern Qld); illustrated by Permkam and Hancock (1995)] ..... *D. australis* Permkam & Hancock, 1995

– Scutum posterior to suture almost entirely black; scutellum black [eastern Indonesia (West Papua Province); illustrated by Saunders (1861: male only)] ..... *D. brevicornis* (Saunders, 1861)

5 Legs yellow with faint vestiges of a brownish ring on femora; abdomen mostly yellow, with yellow band on tergite 1+2 not isolated and with a pair of large black lateral patches from tergites 2 to 4; face yellow; male unknown [eastern Indonesia (Arfak Mts, West Papua Province)] ..... *D. ophion* Osten Sacken, 1881

– Legs with mid and hind femora broadly brown to black medially; abdomen mostly brown to black, often paler posteriorly and with yellow band on tergite 1+2 isolated; face with or without dark spots or band; male with genal processes represented by low ridges 6

6 Wing cell cu_1 hyaline; face yellow; abdomen with yellow band on tergite 1+2 large, separated from hind margin by less than half its own length [Papua New Guinea (Central and Eastern Highlands Provinces above 1200 m)] ..... *D. unistriata* Malloch, 1939

– Wing cell cu_1 brown at least anteriorly; face with a pair of black spots or band near epistome; abdomen with yellow band on tergite 1+2 small, separated from hind margin by about its own length or more 7

7 Wing with costal band crossing R-M crossvein and filling all or most of cell r_{4+5} [eastern Indonesia (northern Papua Province) and northern Papua New Guinea; '*D. myrmex*' of Malloch (1939) is a misidentification; wings illustrated by Malloch (1939)] ..... *D. trilineata* de Meijere, 1915

[The name '*Diplochorda trineata*' appeared in a list of taxa reported at a meeting by de Meijere (1913) two years before its formal description (de Meijere 1915) as *D. trilineata.* De Meijere's original (1913) report stated: '*Diplochorda trineata*, eene nieuwe soort, waarbij de ♂♂ de eigenaardige kopaanhangels missen, welke eenige der overige soorten kenmerken.' [*Diplochorda trineata*, a new species, where the ♂♂ lack the peculiar genal processes, which feature in some of the other species.] However, use of the word 'eenige' [some] indicates that this absence also applies to other species [*e.g. D. concisa* (Walker)] and the above does not constitute a description or definition under the strictly defined terms of the 'Code' (ICZN 1999) but merely records 'a new species' that lacks a character also lacking in other known species. Furthermore, de Meijere (1915) did not mention '*trineata*' or refer to his previous note when describing *D. trilineata*, clearly neither accepting nor having intended it as a valid name. Hence, the name *D. trineata* is regarded here as a *nomen nudum*, having appeared without a valid description, definition or indication, with *D. trilineata* de Meijere, 1915, thus regarded as the valid name.]

– Wing with costal band not crossing R-M crossvein and filling none or only part, faintly, of cell r_{4+5} 8

8 Wing with costal band not crossing vein R_{4+5} into cell r_{4+5} or at most very faintly at its apex [northern Papua New Guinea; wing illustrated by Malloch (1939)] ..... *D. minor* Malloch, 1939

– Wing with costal band crossing vein R_{4+5} into apical half to two-thirds of cell r_{4+5} in its anterior half and extending weakly as a narrow patch almost to apex of vein M [eastern Indonesia (West Papua Province) and southern Papua New Guinea; *Dacus turgidus* Walker, 1865 and *Nesadrama longistigma* Perkins, 1939 are regarded as synonyms; male illustrated by Saunders (1861, as '*Elaphomyia brevicornis* female', a misidentification) and female wing illustrated by Perkins (1939, as '*N. longistigma*')] ..... *D. concisa* (Walker, 1861)

[*Diplochorda turgida* (Walker) (= *N. longistigma* Perkins: synonymised by McAlpine and Schneider (1978) after examination of their types) was listed as a separate species by Norrbom *et al.* (1999) but it is not known on what basis this was done; it had been treated previously as a synonym of *D. concisa* by both Osten Sacken (1881) and Hardy (1959) after examination of their types and, in the absence of further information, that arrangement is followed here. Walker's (1861, 1865) descriptions are essentially identical, with that of the third antennal segment in *D. concisa* ('about one-third of the length of the 2nd') clearly a *lapsus*; it is actually about 2.5 times the length of the second (D. Whitmore pers. comm.). This is a widespread species, known from Salawati Island, Ramoi (near Sorong) and Manokwari in West Papua, plus Kokoda and Mt Lamington in Papua New Guinea.]

Discussion

Tribe Phytalmiini

The composition of this tribe – genera *Phytalmia*, *Diplochorda*, *Sessilina* and *Ortaloptera* – was suggested by McAlpine and Schneider (1978) and accepted by Korneyev (1999), who noted that the female aculeus was only half the length of the oviscape (apomorphy). The presence of male genal processes in at least some species in all four genera, the apically acute but non-lobate wing cell bcu, the narrow and apically sharply acute pterostigma and the lack of a costal spine above the apex of vein Sc also support this association. At least two of the midtibial apical spines are well developed.

Ortaloptera differs from the other genera in retaining two pairs of scutellar setae and a membranous metathoracic postcoxal bridge (plesiomorphies) and is presumably the most primitive of the tribe. In *Sessilina*, *Diplochorda* and *Phytalmia* there is only one pair of scutellar setae and the metathoracic postcoxal bridge is broadly sclerotised (apomorphies). In *Diplochorda* and *Phytalmia* the abdomen is petiolate and the anterior notopleural seta is weak or absent (apomorphies); the latter is well developed in *Ortaloptera* and *Sessilina* and the abdomen is not petiolate (plesiomorphies). *Phytalmia*, with its well developed genal processes and *Diplochorda*, with its strongly arched costa in males (both apomorphies), are the most speciose of the genera.

In a phylogenetic study by Schutze *et al.* (2007), morphological and morphological + mitochondrial DNA data supported the monophyly of *Phytalmia*, whereas the mitochondrial data alone (COII, 16S and combined COII+16S) resulted in paraphyly with respect to *Sessilina* and/or *Diplochorda,* with each resulting cladogram different from the others. This casts considerable doubt on the reliability of molecular evidence, in isolation, as an indicator of phylogenetic relationships.

All four genera occur in New Guinea, with single species of *Phytalmia* (*P. mouldsi* McAlpine & Schneider) and *Diplochorda* (*D. australis* Permkam & Hancock) occurring at Iron Range in northeastern Queensland.

Tribe Phascini

This tribe was regarded as distinct and defined by Korneyev (1994, 1999) to include five genera – *Diarrhegmoides*, *Othniocera*, *Paraphasca*, *Phasca* and *Xenosophira*, all with similar wing patterns and bare spermathecae with protruding nipple-like apices. *Stigmatomyia*, *Gressittidium* and *Epinettyra* were added subsequently by Hancock and Drew (2003) or Hancock (2011b). Although *Epinettyra* has an atypical wing pattern, its spermathecae are similar to those of *Othniocera* (*cf.* Permkam and Hancock 1995 and Hardy 1986). The genera form an apparently closely related and monophyletic group but their interrelationships are difficult to determine.

Korneyev (1999) noted that the Phascini and Phytalmiini both had the vanes of the phallapodeme fused into a Y-shaped structure (a homoplasious

apomorphy that also occurs in most genera of Acanthonevrini and is thus possibly plesiomorphic within the subfamily). The distinctive, ivory-white medial vitta against a black scutum, seen in most species of Phascini (*e.g. Phasca trifasciata* Hardy: Hancock and Drew 2003), resembles that of *Ortaloptera callistomyia* (Fig. 2) and suggests a close relationship. Phascini differ from Phytalmiini and Epacrocerini in having only one of the midtibial apical spines well developed (apomorphy).

All genera occur in New Guinea with the exception of *Epinettyra*, with its sole species *E. setosa* Permkam & Hancock known only from Iron Range and the Atherton Tableland in northeastern Queensland.

Tribe Epacrocerini

This tribe was regarded as distinct and defined by Korneyev (1994, 1999), based on the *Epacrocerus* group of Hardy (1982), to include four genera – *Epacrocerus*, *Proepacrocerus*, *Tanymetopus* and *Udamolobium*, with *Sophiropsis* later added by Hancock and Drew (2003). *Proepacrocerus* and *Sophiropsis* do not have the lobate second antennal segment seen in all the other genera but are associated on other characters, including the non-lobate wing cell bcu and the presence of one pair each of long frontal and orbital setae; these two genera are likely to be primitive within the tribe.

Tanaodema Hardy is added to the group here; although unusual in many respects (Hardy 1987), it has the characteristic lobe on the inner margin of the second antennal segment (apomorphy), plus a non-lobate cell bcu and a greatly modified head, the latter apparently an extreme version of the modifications present in *Tanymetopus* and *Udamolobium* that are much less developed in *Epacrocerus*. In *Udamolobium* and *Tanaodema* the lobe of the second antennal segment is broadly rounded [anteriorly produced in *Epacrocerus* (sharply) and *Tanymetopus* (bluntly)], the wing pattern is somewhat reticulate posteriorly and the pterostigma is longer than cell c (apomorphies); these appear to be the most specialised genera. Several other apomorphies seen in *Tanaodema* – the narrow and sharply acute pterostigma, lack of a costal spine above the apex of vein Sc and presence of only one pair of scutellar setae – appear to be homoplasious with Phytalmiini.

Korneyev (1999) noted that the eversible membrane of the ovipositor in Epacrocerini is impregnated by sclerotised, apparently dentiform structures, similar to that in tribe Phascini. The aculeus, with its blunt apex and four pairs of preapical setae, is very similar (although broader subapically) to that of *Paraphasca*, while the spermathecae (bare with a protruding, nipple-like apex, at least in *Sophiropsis*), closely resemble those of the Phascini, also suggesting a close relationship. As in Phytalmiini, at least two of the midtibial apical spines are well developed.

The six genera are known only from New Guinea, with one species, *Tanymetopus claripennis* Hardy, extending as far east as New Britain.

Tribal status

It appears likely that all 18 genera recognised here belong in a single tribe, Phytalmiini, defined largely by the number and form of the midtibial spines, with the Phascini and Epacrocerini representing no more than groups of genera. However, since life history details are unknown for both Phascini and Epacrocerini, synonymy at this stage would be premature. It is likely, however, that all breed in newly fallen logs, sharing a similar life history with some groups in tribe Acanthonevrini such as the *Rioxa* and *Dacopsis* complexes and some genera in the *Acanthonevra* complex (Hancock 2013, 2014a, 2014b). Other groups of Acanthonevrini – the bamboo stem-breeding *Sophira* complex (Hancock 2012) and the primarily tree trunk-breeding *Aethiothemara*, *Diarrhegma*, *Dirioxa* and *Themaroides* groups (Hancock 2015) – are possibly more distantly related and the whole tribal classification within subfamily Phytalmiinae requires further examination. If needed, the tribal name Terastiomyiini is available for the *Sophira* complex.

List of known species

Forty-eight species have been described in the three tribes reviewed here. These are listed below, together with their synonyms.

Tribe EPACROCERINI

Epacrocerus apiculatus Hardy, 1982
E. maculatus Hardy, 1982
E. quadrivittatus Hardy, 1982
E. splendens Hardy, 1982
Proepacrocerus pallidoviridus Hardy, 1988
Sophiropsis calcarata Hardy, 1986
S. improbata (Hering, 1941)
Tanaodema porrecta Hardy, 1987
Tanymetopus claripennis Hardy, 1982
Udamolobium pictulum Hardy, 1982

Tribe PHASCINI

Diarrhegmoides hastatum Malloch, 1939
Epinettyra setosa Permkam & Hancock, 1995
Gressittidium flavicoxa Hardy, 1986
Othniocera aberrans Hardy, 1986
O. pallida Hardy, 1986
O. pictipennis Hardy, 1986
Paraphasca biangulata (de Meijere, 1924)
Pa. taenifera Hardy, 1986
Phasca bicunea Hardy, 1986
P. connexa Hardy, 1986
P. maculifacies Hardy, 1986
P. ortaloides (Walker, 1865) (= *bidens* (Hering, 1953))
P. sedlaceki Hardy, 1986

P. trifasciata Hardy, 1986
Stigmatomyia arcuata Hardy, 1986
Xenosophira invibrissata Hardy, 1980
X. vibrissata Hardy, 1980

Tribe PHYTALMIINI

Diplochorda aneura Malloch, 1939
D. australis Permkam & Hancock, 1995
D. brevicornis (Saunders, 1861)
D. concisa (Walker, 1861) (= *turgida* (Walker, 1865); = *longistigma* (Perkins, 1939))
D. minor Malloch, 1939
D. myrmex Osten Sacken, 1881 (= *petiolata* (Hardy, 1974))
D. ophion Osten Sacken, 1881
D. trilineata de Meijere, 1915 (= *trineata* de Meijere, 1913, *nomen nudum*)
D. unistriata Malloch, 1939
Ortaloptera callistomyia Hering, 1941
O. cleitamina Edwards, 1915
Phytalmia alcicornis (Saunders, 1861)
P. antilocapra McAlpine & Schneider, 1978
P. biarmata Malloch, 1939
P. cervicornis Gerstaecker, 1860 (= *prisca* (Enderlein, 1936))
P. megalotis Gerstaecker, 1860 (= *wallacei* (Saunders, 1861))
P. mouldsi McAlpine & Schneider, 1978
P. robertsi Schneider, 1993
Sessilina horrida McAlpine & Schneider, 1978
S. literata McAlpine & Schneider, 1978
S. nigrilinea (Walker, 1861) (= *wollastoni* (Edwards, 1915))

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